We claim:

1. A method for treating an infectious disease caused by a bacteria, in an animal, comprising:

administering to an animal in need of such treatment, a lytic or non-lytic physico-chemically altered bacteriophage that is specific for said bacteria, in a dosage effective to substantially eliminate the bacteria, wherein said physico-chemically altered bacteriophage has a delayed inactivation by an animal's host defense system (HDS).

2. The method according to claim 1, wherein said bacteria is a drug resistant bacteria.

3. The method according to claim 1, wherein said animal is not a mammal.

4. The method according to claim 1, wherein said animal is a mammal.

5. The method according to claim 4, wherein said mammal is a human.

6. The method according to claim 1, wherein said physico-chemically altered bacteriophage is PEGylated.

7. The method according to claim 1, wherein said physico-

chemically altered bacteriophage has at least a 15% longer half-life than a corresponding wild-type phage.

8. The method according to claim 1, wherein the bacteria is selected from the group consisting of Mycobacteria, Staphylococci, Vibrio, Enterobacter, Enterococci, Escherichia, Haemophilus, Neisseria, Pseudomonas, Shigella, Serratia, Salmonella and Streptococci, and the bacteriophage can effectively lyse the bacteria.

9. The method according to claim 8, wherein the bacteria is selected from the group consisting of M. tuberculosis, M. avium-intracellulare and M. bovis.

10. The method according to claim 1, wherein the bacteriophage is administered by way of an aerosol to an animal's lungs.

11. The method according to claim 1, wherein the bacteriophage is administered at a dosage of about 10^6 to about 10^{13} pfu/kg/day.

12. The method according to claim 11, wherein the bacteriophage is administered at a dosage of about 10^{12} pfu/kg/day.

13. The method according to claim 1, wherein said bacteriophage is genetically modified to evade the HDS.

14. A physico-chemically altered bacteriophage which is able to delay inactivation by an animal's host defense system.

15. The bacteriophage according to claim 14, wherein said bacteriophage has at least a 15% longer half-life than a corresponding wild-type phage.

16. The bacteriophage according to claim 14, wherein said phage is specific for bacterial families selected from the group consisting of Escherichia, Klebsiella, Shigella, Salmonella, Serratia, Yersinia, Enterobacter, Enterococci, Haemophilus, Mycobacteria, Neisseria, Pseudomonas, Staphylococci, Streptococci and Vibrio.

17. The bacteriophage according to claim 14, wherein said bacteriophage is PEGylated.

18. A method of obtaining a physico-chemically altered bacteriophage that is able to delay inactivation by an animal's host defense system against foreign bodies, comprising the steps of:

(a) protecting tail proteins on a bacteriophage, and

(b) then binding a polymer to any unprotected proteins on

said bacteriophage.

19. The method according to claim 18, wherein said polymer is polyethylene glycol (PEG).

20. A method for treating an infectious disease caused by a bacteria, comprising administering to an animal in need of such treatment an antibiotic and/or a chemotherapeutic agent, in combination with a physico-chemically altered bacteriophage specific for said bacteria, in a dosage effective to substantially eliminate the bacteria, wherein said physico-chemically altered bacteriophage is able to delay inactivation by the animal's host defense system.

21. The method according to claim 20, wherein said physico-chemically altered bacteriophage is PEGylated.

22. A pharmaceutical composition comprising a physico-chemically altered bacteriophage which is able to delay inactivation by an animal's host defense system, in combination with a pharmaceutically acceptable carrier.

23. The pharmaceutical composition according to claim 22, wherein said physico-chemically altered bacteriophage is PEGylated.

24. The pharmaceutical composition according to claim 22,

wherein said composition is an aerosol formulation for administration to an animal's lungs.

25. The pharmaceutical composition according to claim 22, wherein said bacteriophage is in lyophilized form.